

Title (en)
Production method of cam lobe piece of assembled camshaft

Title (de)
Verfahren zur Herstellung einer Nocke für eine gebaute Nockenwelle

Title (fr)
Procédé de production d'une came pour un arbre à cames assemblé

Publication
EP 1331052 A3 20050406 (EN)

Application
EP 03001263 A 20030121

Priority
• JP 2002015229 A 20020124
• JP 2002154988 A 20020529

Abstract (en)
[origin: EP1331052A2] A method of producing a cam lobe piece (1) of an assembled camshaft in a valve operating system for an internal combustion engine. The method comprises (a) forming a profile of the cam lobe piece (1) by upsetting a material (W) under forging to obtain an intermediately formed body (W1); (b) piercing a central portion of the intermediately formed body (W1) to form a shaft bore (2); and (c) ironing an inner peripheral surface of the pierced intermediately formed body (W1) to form unevenness at the inner peripheral surface, all accomplished by cold working. The material at the forming the profile of the cam lobe piece (1) has a first section (5a) located on a side of a cam nose of the cam lobe piece (1), and a second section (5b) located longitudinally opposite to the first section. The material has a thickness which gradually increases in a direction from the second (5b) section to the first section (5a). <IMAGE>

IPC 1-7
B21K 1/00; **B21J 5/02**; **F16H 53/02**

IPC 8 full level
B21J 5/00 (2006.01); **B21J 5/02** (2006.01); **B21J 5/06** (2006.01); **B21J 5/12** (2006.01); **B21K 1/00** (2006.01); **B21K 1/20** (2006.01); **B21K 1/76** (2006.01); **F01L 1/04** (2006.01)

CPC (source: EP US)
B21J 5/02 (2013.01 - EP US); **B21K 1/00** (2013.01 - EP US); **Y10T 29/49293** (2015.01 - EP US); **Y10T 29/49995** (2015.01 - EP US)

Citation (search report)
• [Y] PATENT ABSTRACTS OF JAPAN vol. 2000, no. 24 11 May 2001 (2001-05-11)
• [Y] PATENT ABSTRACTS OF JAPAN vol. 2000, no. 14 5 March 2001 (2001-03-05)
• [DA] PATENT ABSTRACTS OF JAPAN vol. 017, no. 208 (M - 1401) 23 April 1993 (1993-04-23)
• [DA] PATENT ABSTRACTS OF JAPAN vol. 1998, no. 02 30 January 1998 (1998-01-30)

Cited by
EP1860285A1; CN102773674A; CN102941308A; WO2007134472A1

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT SE SI SK TR

DOCDB simple family (publication)
EP 1331052 A2 20030730; **EP 1331052 A3 20050406**; **EP 1331052 B1 20070509**; DE 60313682 D1 20070621; DE 60313682 T2 20080124; JP 2003285138 A 20031007; JP 3931729 B2 20070620; US 2003159284 A1 20030828; US 6775908 B2 20040817

DOCDB simple family (application)
EP 03001263 A 20030121; DE 60313682 T 20030121; JP 2002154988 A 20020529; US 34748203 A 20030121